

Claims

[c1] What is claimed is:

1.A probe tip for flip-chip packaging process, the probe tip comprising:
a needle body; and
a stop cylinder having a recess for accommodating the needle body therein, the needle body being electrically connected to the stop cylinder via a resilient conductive material;
wherein the stop cylinder has an annular flat bottom surrounding the needle body for pressing a protruding probe mark on a metal pad scratched by the needle body.

[c2] 2.The probe tip for flip-chip packaging process of claim 1 wherein the metal pad is made of aluminum or copper and is formed on a chip.

[c3] 3.The probe tip for flip-chip packaging process of claim 1 wherein the needle body protrudes from the bottom of the stop cylinder by at least 1 micron.

[c4] 4.The probe tip for flip-chip packaging process of claim 1 wherein the resilient conductive material is conductive

glue.

- [c5] 5.The probe tip for flip-chip packaging process of claimed wherein the annual flat bottom has a width of about 20 microns to 30 microns.
- [c6] 6.A flip-chip packaging process comprising:
 - providing a chip having thereon at least one metal pad surface;
 - providing a probe tip comprising a needle body and a stop cylinder having a recess for accommodating the needle body therein, the needle body being electrically connected to the stop cylinder via a resilient conductive material;
 - laterally moving the needle body of the probe tip to scratch a portion of the metal pad surface so as to form a protruding probe mark thereon;
 - pressing the protruding probe mark to a predetermined height with the stop cylinder;
 - forming a under bump metallurgy (UBM) over the metal pad surface; and
 - forming a bump over the UBM.
- [c7] 7.The flip-chip packaging process of claim 6 wherein the predetermined height is below 2 microns.
- [c8] 8.The flip-chip packaging process of claim 6 wherein the

predetermined height is below 1 microns.

- [c9] 9.The flip-chip packaging process of claim 6 wherein the bump is solder bump.
- [c10] 10.The flip-chip packaging process of claim 6 wherein the metal pad is made of aluminum or copper and is formed on a chip.
- [c11] 11.The flip-chip packaging process of claim 6 wherein the needle body protrudes from the bottom of the stop cylinder by at least 1 micron.
- [c12] 12.The flip-chip packaging process of claim 6 wherein the resilient conductive material is conductive glue.
- [c13] 13.The flip-chip packaging process of claim 6 wherein the annual flat bottom has a width of about 20 microns to 30 microns.